

REMARKS

I. Status Summary

Claims 1, 4-9 and 11-26 are pending in the present application. Claims 11-24 have been withdrawn. Claims 1; 4-9, 25 and 26 have been examined by the Patent Office and currently stand rejected.

Claims 1, 4-9, 25 and 26 have been rejected on the ground of non-statutory obviousness-type double patenting upon the contention that the claims are unpatentable over claims 1, 2 and 6-8 of U.S. Patent No. 7,101,504 to Suzuki (hereinafter "the '504 Patent") in view of Leenslag et al. (1984 *Journal of Applied Polymer Science* 29:2829-2842; hereinafter "Leenslag et al.").

Claims 1 and 8 have been rejected under 35 U.S.C. § 103(a) upon the contention that the claims are unpatentable over JP 2003-16615 A to Suzuki et al. (hereinafter "Suzuki et al.") in view of U.S. Patent No. 6,497,952 to Ohkoshi et al. (hereinafter "Ohkoshi et al.").

Claims 4-7 have been rejected under 35 U.S.C. § 103(a) upon the contention that the claims are unpatentable over Suzuki et al. in view of Ohkoshi et al. and U.S. Patent No. 4,101,525 to Davis et al. (hereinafter "Davis et al.").

Claim 9 has been rejected under 35 U.S.C. § 103(a) upon the contention that this claim is unpatentable over Suzuki et al. in view of Ohkoshi et al. and U.S. Patent No. 5,506,041 to Tanaka et al. (hereinafter "Tanaka et al.").

Claims 25 and 26 have been rejected under 35 U.S.C. 103(a) upon the contention that the claims are unpatentable over Suzuki et al. in view of Ohkoshi et al. and Leenslag et al.

Claims 1, 4-9, 25 and 26 have been amended. Support for the amendments can be found throughout the specification as originally filed, and in particular at page 6, first full paragraph; in the paragraph bridging pages 11 and 12; and in the paragraph bridging pages 14 and 15. No new matter has been added.

Reconsideration of the claims in view of the remarks and amendments herein is respectfully requested.

II. Response to Non-Statutory Obviousness-Type Double Patenting Rejection

Claims 1, 4-9, 25 and 26 have been rejected on the ground of non-statutory obviousness-type double patenting upon the contention that the claims are unpatentable over claims 1, 2 and 6-8 of U.S. Patent No. 7,101,504 to Suzuki (hereinafter "the '504 Patent") in view of Leenslag et al. (1984 *Journal of Applied Polymer Science* 29:2829-2842; hereinafter "Leenslag et al."). The Patent Office contends that the '504 Patent teaches each and every element of the rejected claims except that the filaments are biodegradable aliphatic polyester. However, the Patent Office contends that Leenslag et al. compensates for this deficiency. As such, the Patent Office contends that it would have been obvious to one of ordinary skill in the art at the time of the filing to combine the teaching of the '504 Patent and Leenslag et al. to arrive at the presently claimed subject matter.

After careful consideration of the rejections and the Patent Office's bases therefore, applicants respectfully traverse the rejections and submit the following remarks.

Without acquiescing to the contentions of the Patent Office, applicants submit herewith a terminal disclaimer in compliance with 37 C.F.R. 1.321(c). In view of the terminal disclaimer, applicants respectfully request withdrawal of the non-statutory obviousness-type double patenting rejection of claims 1, 4-9, 25 and 26. Applicants further submit that these claims are in condition for allowance and respectfully solicit the same.

In submitting the attached Terminal Disclaimer, applicants do not acknowledge that the subject matter recited in the conflicting claims are not patentably distinct. Moreover, applicants do not acknowledge that the subject matter recited in the rejected claims of the present patent application is an obvious variant of the subject matter recited in one or more claims in the cited U.S. patents. Indeed, the Federal Circuit has noted that a Terminal Disclaimer "is not an admission of obviousness of the later filed claimed invention in light of the earlier filed disclosure for that is not the

basis of the Disclaimer." Quad Environmental Technologies v. Union Sanitary District, 20 U.S.P.Q.2d 1392, 1394 (Fed. Cir. 1991).

The Federal Circuit further noted:

In legal principle, the filing of a Terminal Disclaimer simply serves the statutory function of removing the rejection of double patenting and raises neither presumption nor estoppel on the merits of the rejection. It is improper to convert this simple expedient "obviation" into an admission or acquiescence or estoppel on the merit.

Quad Environmental Technologies, 20 U.S.P.Q.2d at 1394-95.

Therefore, with the submission of the Terminal Disclaimer provided herewith, applicants are simply availing themselves of the statutory function of removing the double patenting rejection. Withdrawal of the rejection of claims 1, 4-9, 25 and 26 on the ground of non-statutory obviousness-type double patenting is therefore respectfully requested. A Notice of Allowance is also respectfully requested.

III. Response to Rejections Under 35 U.S.C. § 103

III.A. Rejection of claims 1 and 8 over Suzuki et al. in view of Ohkoshi et al.

Claims 1 and 8 have been rejected under 35 U.S.C. § 103(a) upon the contention that the claims are unpatentable over JP 2003-16615 A to Suzuki et al. (hereinafter "Suzuki et al.") in view of U.S. Patent No. 6,497,952 to Ohkoshi et al. (hereinafter "Ohkoshi et al."). The Patent Office appears to contend that Suzuki et al. provides a method for manufacturing drawn filament comprising each step of the presently claimed subject matter except the use of a plurality of beams. However, it appears that the Patent Office contends that Ohkoshi et al. compensates for this deficiency. As such, the Patent Office contends that it would have been obvious to one of ordinary skill in the art at the filing of the subject application to combine the teachings of Suzuki et al. and of Ohkoshi et al. to arrive at the presently claimed subject matter.

After careful consideration of the rejections and the Patent Office's bases therefore, applicants respectfully traverse the rejections and submit the following remarks.

Without acquiescing to the contentions of the Patent Office and in an effort to advance prosecution, applicants respectfully submit that claim 1 has been amended. Specifically, claim 1 has been amended to recite a method for manufacturing drawn synthetic biodegradable filament. Consistent with this amendment to claim 1, dependent claims 4-9, 25 and 26 have also been amended to recite synthetic biodegradable filament. Moreover, claim 1 has been rewritten to more clearly recite the method of manufacturing drawn synthetic biodegradable filament. Support for these amendments can be found throughout the specification as originally filed, and in particular at page 6, first full paragraph; in the paragraph bridging pages 11 and 12; in the paragraph bridging pages 14 and 15; and in original claim 1. No new matter has been added.

Applicants respectfully submit that Suzuki et al. or Ohkoshi et al., alone or in combination, fail to provide for a method for manufacturing drawn synthetic biodegradable filament to a draw ratio of 100 times or more, comprising the steps as recited in present claim 1. As such, applicants respectfully submit that the proposed combination of Suzuki et al. and Ohkoshi et al. fails to support a rejection of present claim 1 under 35 U.S.C. § 103(a).

To elaborate, applicants respectfully submit that the presently disclosed and claimed subject matter provides for the manufacturing of drawn synthetic biodegradable filament from an original synthetic biodegradable filament. Such synthetic biodegradable filaments, such as for example polylactic acid fibers, polyglycolic acid fibers, polygluamic acid fibers, poly-p-dioxic acid fibers, poly- α -malic acid fibers or poly- β -hydroxybutyric acid fibers, and the like, are difficult to draw and manufacture into micro fibers due to poor spinning and drawing properties. See, e.g. the Background of the Invention section at pages 1-3 of the instant specification.

In marked contrast, Suzuki et al., at best, describes applications for natural fibers, e.g. silk, or applications for filaments comprising a readily drawn polymer, e.g., nylon, PET and polypropylene. These methods are not tantamount to the presently disclosed and claimed methods directed to drawing synthetic biodegradable filaments.

The presently disclosed and claimed subject matter overcomes the poor drawing properties of synthetic biodegradable filaments and makes it possible to manufacture a synthetic filament drawn to a draw ratio of at least one hundred. The presently disclosed and claimed methods deliver the original synthetic filament through a blowing duct to introduce the original synthetic filament (the use of a blowing duct allows the filament to be introduced without resistance and under stable conditions, the absence of which would not allow the tension to stabilize at a low level of 10 MPa or less), employ infrared beams radiating from multiple directions to heat the original synthetic filament within a range of 4 mm up and down the axis direction, apply a tension of 10 MPa or less to the filament, and draw the synthetic biodegradable filament to a draw ratio of 100 times or more. Therefore, the claimed method makes it possible to heat a narrow zone of the original synthetic filament uniformly and rapidly, while under a tension of 10 MPa or less, which in turn allows the synthetic filament to be drawn to a high draw ratio of 100 times or more.

Because Suzuki et al. is directed to applications for natural fibers and filaments comprising a readily drawn polymer, such problems are not addressed. Moreover, Suzuki et al. does not appear to describe drawing a polymer by a ratio of 100 or more as presently claimed. As such, the aspects of the presently disclosed and claimed methods which provide for the manufacturing of a drawn synthetic biodegradable filament are not present in Suzuki et al.

Ohkoshi et al. does not compensate for the deficiencies of Suzuki et al. with respect to the presently disclosed and claimed subject matter. Specifically, Ohkoshi et al. does not provide a method of manufacturing drawn synthetic biodegradable filament, comprising drawing the synthetic filament to a draw ratio of 100 times or

more using low tension drawing as presently claimed. At best, Ohkoshi et al. achieved a draw ratio of about 7 times (See, e.g., Examples 1-3 and Figure 12). Moreover, to the extent that Ohkoshi et al. provides for irradiation from multiple locations as allegedly shown in Figure 2-10, Ohkoshi et al. does not provide or teach that a synthetic filament is heated at a narrow area along the filament axis direction (in the range of within 4 mm up and down the axis) as presently claimed.

Therefore, neither of Suzuki et al. or Ohkoshi et al., alone or in combination, provide a method for manufacturing drawn synthetic biodegradable filament, comprising the steps of delivering the original synthetic filament through a blowing duct to introduce the original synthetic filament, employing infrared beams radiating from multiple directions to heat the original synthetic filament within a range of 4 mm up and down the axis direction, applying a tension of 10 MPa or less to the filament, and drawing the synthetic biodegradable filament to a draw ratio of 100 times or more, as recited in present claim 1.

As such, the proposed combination of Suzuki et al. and Ohkoshi et al. fails to support a rejection of claim 1 under 35 U.S.C. § 103(a). Claim 1 is therefore believed to be patentable over the proposed combination of Suzuki et al. and Ohkoshi et al. Because claim 8 depends from claim 1 it too is believed to be patentable over the combination of Suzuki et al. and Ohkoshi et al.

The instant rejection has therefore been addressed. Withdrawal of the instant rejection is respectfully requested. A Notice of Allowance is also respectfully requested.

III.B. Rejection of claims 4-7 over Suzuki et al. in view of
Ohkoshi et al. and Davis et al.

Claims 4-7 have been rejected under 35 U.S.C. § 103(a) upon the contention that the claims are unpatentable over Suzuki et al. in view of Ohkoshi et al. and U.S. Patent No. 4,101,525 to Davis et al. (hereinafter "Davis et al."). The Patent Office contends that it would have been obvious to one of ordinary skill in the art at the filing

of the subject application to combine the teachings of Suzuki et al., Ohkoshi et al. and Davis et al. to arrive at the presently claimed subject matter.

After careful consideration of the rejections and the Patent Office's bases therefore, applicants respectfully traverse the rejections and submit the following remarks.

Initially, applicants respectfully submit that claim 1, from which claims 4-7 depend, has been amended as discussed hereinabove. Likewise, claims 4-7 have been amended to recite "synthetic biodegradable filament". Support for these amendments can be found throughout the specification as originally filed, and in particular at page 6, first full paragraph; in the paragraph bridging pages 11 and 12; and in the paragraph bridging pages 14 and 15. No new matter has been added.

The above-noted deficiencies in the proposed combination of Suzuki et al. and Ohkoshi et al. with respect to present claim 1 are believed to be equally applicable to the instant rejection. Davis et al. fails to compensate for the deficiencies in the proposed combination of Suzuki et al. and Ohkoshi et al.

Specifically, Davis et al. fails to provide a method for manufacturing drawn synthetic biodegradable filament, comprising the steps of delivering the original synthetic filament through a blowing duct to introduce the original synthetic filament, employing infrared beams radiating from multiple directions to heat the original synthetic filament within a range of 4 mm up and down the axis direction, applying a tension of 10 MPa or less to the filament, and drawing the synthetic biodegradable filament to a draw ratio of 100 times or more, as recited in present claim 1. Davis et al. is, at best, directed to applications for PET filaments. As described above, PET filaments are believed to be readily drawn and not subject to the challenges overcome by the presently disclosed and claimed subject matter.

As such, the proposed combination of Suzuki et al., Ohkoshi et al. and Davis et al. fails to support a rejection of claim 1 under 35 U.S.C. § 103(a). Because claims 4-7 depend from claim 1 they too are believed to be patentable over the combination of Suzuki et al., Ohkoshi et al. and Davis et al.

The instant rejection has therefore been addressed. Withdrawal of the instant rejection is respectfully requested. A Notice of Allowance is also respectfully requested.

III.C. Rejection of claim 9 over Suzuki et al. in view of
Ohkoshi et al. and Tanaka et al.

Claim 9 has been rejected under 35 U.S.C. § 103(a) upon the contention that this claim is unpatentable over Suzuki et al. in view of Ohkoshi et al. and U.S. Patent No. 5,506,041 to Tanaka et al. (hereinafter "Tanaka et al."). The Patent Office contends that it would have been obvious to one of ordinary skill in the art at the filing of the subject application to combine the teachings of Suzuki et al., Ohkoshi et al. and Tanaka et al. to arrive at the presently claimed subject matter.

After careful consideration of the rejections and the Patent Office's bases therefore, applicants respectfully traverse the rejections and submit the following remarks.

Initially, applicants respectfully submit that claim 1, from which claim 9 depends, has been amended as discussed hereinabove. Likewise, claim 9 has been amended to recite "synthetic biodegradable filament". Support for these amendments can be found throughout the specification as originally filed, and in particular at page 6, first full paragraph; in the paragraph bridging pages 11 and 12; and in the paragraph bridging pages 14 and 15. No new matter has been added.

The above-noted deficiencies in the proposed combination of Suzuki et al. and Ohkoshi et al. with respect to present claim 1 are believed to be equally applicable to the instant rejection. Tanaka et al. fails to compensate for the deficiencies in the proposed combination of Suzuki et al. and Ohkoshi et al.

Specifically, Tanaka et al. fails to provide a method for manufacturing drawn synthetic biodegradable filament, comprising the steps of deliving the original synthetic filament through a blowing duct to introduce the original synthetic filament, use infrared beams radiating from multiple directions to heat the original synthetic filament within a range of 4 mm up and down the axis direction, apply a tension of 10

MPa or less to the filament, and draw the synthetic biodegradable filament to a draw ratio of 100 times or more, as recited in present claim 1. Tanaka et al. is, at best, directed to biodegradable nonwoven fabrics, which are believed to be quite distinct from methods of drawing synthetic biodegradable filaments.

As such, the proposed combination of Suzuki et al., Ohkoshi et al. and Tanaka et al. fails to support a rejection of claim 1 under 35 U.S.C. § 103(a). Because claim 9 depends from claim 1 it too is believed to be patentable over the combination of Suzuki et al., Ohkoshi et al. and Tanaka et al.

The instant rejection has therefore been addressed. Withdrawal of the instant rejection is respectfully requested. A Notice of Allowance is also respectfully requested.

III.D. Rejection of claims 25 and 26 over Suzuki et al. in view of
Ohkoshi et al. and Leenslag et al.

Claims 25 and 26 have been rejected under 35 U.S.C. 103(a) upon the contention that the claims are unpatentable over Suzuki et al. in view of Ohkoshi et al. and Leenslag et al. The Patent Office contends that it would have been obvious to one of ordinary skill in the art at the filing of the subject application to combine the teachings of Suzuki et al., Ohkoshi et al. and Leenslag et al. to arrive at the presently claimed subject matter.

After careful consideration of the rejections and the Patent Office's bases therefore, applicants respectfully traverse the rejections and submit the following remarks.

Initially, applicants respectfully submit that claim 1, from which claims 25 and 26 now depend, has been amended as discussed hereinabove. Likewise, claims 25 and 26 have been amended to recite "synthetic biodegradable filament". Support for these amendments can be found throughout the specification as originally filed, and in particular at page 6, first full paragraph; in the paragraph bridging pages 11 and 12; and in the paragraph bridging pages 14 and 15. No new matter has been added.

The above-noted deficiencies in the proposed combination of Suzuki et al. and Ohkoshi et al. with respect to present claim 1 are believed to be equally applicable to the instant rejection. Leenslag et al. fails to compensate for the deficiencies in the proposed combination of Suzuki et al. and Ohkoshi et al.

Specifically, Leenslag et al. fails to provide a method for manufacturing drawn synthetic biodegradable filament, comprising the steps of deliving the original synthetic filament through a blowing duct to introduce the original synthetic filament, use infrared beams radiating from multiple directions to heat the original synthetic filament within a range of 4 mm up and down the axis direction, apply a tension of 10 MPa or less to the filament, and draw the synthetic biodegradable filament to a draw ratio of 100 times or more, as recited in present claim 1.

As such, the proposed combination of Suzuki et al., Ohkoshi et al. and Leenslag et al. fails to support a rejection of claim 1 under 35 U.S.C. § 103(a). Because claims 25 and 26 depend from claim 1 they too is believed to be patentable over the combination of Suzuki et al., Ohkoshi et al. and Leenslag et al.

The instant rejection has therefore been addressed. Withdrawal of the instant rejection is respectfully requested. A Notice of Allowance is also respectfully requested.

CONCLUSION

In light of the above Amendments and Remarks, it is respectfully submitted that the present application is now in proper condition for allowance, and an early notice to such effect is earnestly solicited.

If any small matter should remain outstanding after the Patent Examiner has had an opportunity to review the above Remarks, the Patent Examiner is respectfully requested to telephone the undersigned patent attorney in order to resolve these matters and avoid the issuance of another Official Action.

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DEPOSIT ACCOUNT

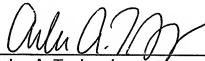
The Commissioner is hereby authorized to charge any fees associated with the filing of this correspondence to Deposit Account No. 50-0426.

Respectfully submitted,

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